

An improved method of nuclear transfer involving the transplantation of donor cell nuclei into enucleated oocytes of a species different from the donor cell is provided. The resultant nuclear transfer units are useful for the production of isogenic embryonic stem cells, in particular human isogenic embryonic or stem cells. These embryonic or stem-like cells are useful for producing desired differentiated cells and for introduction, removal or modification, of desired genes, e.g., at specific sites of the genome of such cells by homologous recombination. These cells, which may contain a heterologous gene, are especially useful in cell transplantation therapies and for *in vitro* study of cell differentiation.